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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,363	06/03/2005	Guangshun Yi	514572002600	8688
25225 7590 11/28/2007 MORRISON & FOERSTER LLP 12531 HIGH BLUFF DRIVE SUITE 100 SAN DIEGO, CA 92130-2040			EXAMINER KOSLOW, CAROL M	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/511,363

Applicant(s)

YI ET AL.

Examiner

C. Melissa Koslow

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-22 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 29-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

This action is in response to applicants' amendment of 19 September 2007. The amendment to the claims has overcome the 35 USC 112 rejection. Applicant's arguments with respect to the art rejections have been fully considered but they are not persuasive.

Claim 28 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form.

Page 3, lines 19-21 define "uniform" as particles having a standard deviation of particle sizes that equals to or is less than 20%. Thus the subject matter of this claim is implicitly taught by claim 1 since the specification defines the limitation "uniform" of claim 1 as being that of claim 28.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11 and 28-30 and are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,674,698.

This reference teaches phosphor fluoride particles having a particle size in the range of 100-300 nm (col. 13, lines 43-46) and where the phosphors can be  $\text{YF}_3\text{:Yb-Er}$ ,  $\text{YF}_3\text{:Yb-Tm}$ ,  $\text{YF}_3\text{:Yb-Ho}$ ,  $\text{LaF}_3\text{:Yb-Er}$ ,  $\text{LaF}_3\text{:Yb-Tm}$ ,  $\text{LaF}_3\text{:Yb-Ho}$ ,  $\text{GdF}_3\text{:Yb-Er}$ ,  $\text{GdF}_3\text{:Yb-Tm}$ ,  $\text{GdF}_3\text{:Yb-Ho}$ ,  $\text{NaYF}_4\text{:Yb-Er}$ ,  $\text{NaYF}_4\text{:Yb-Ho}$  or  $\text{NaYF}_4\text{:Yb-Tm}$ . Column 16, lines 57-61 teaches formulas that fall within the composition of claims 5 and 24. Column 17, lines 45-58 teaches the phosphor particles should be monodispersed, which means the particles all have the same particles size and thus would have a standard deviation that falls within the claimed range and indicates how these particles are produced. Column 18, lines 43-54 teaches the particles can be coated with a silica

coating layer and column 18, line 65-60 teaches the particles can be coated with a transparent polymer which is then coated with a immobilized biological moiety. The reference teaches the claimed phosphor particles.

Applicants argue the reference does not teach the claimed particles since it does not teach how to produce these particles. Lines 52-54 in column 17 states the monodispersed particles can be produced by homogenous precipitation reactions at high dilutions and then gives the argued oxysulfide particles as an example. Thus the reference does teach how to produce the taught particles. The rejection is maintained.

Claims 1-6, 8 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,891,361.

This reference teaches uniform rare earth fluoride phosphor particles, where the particles have a particle size of less than 1 micron. Column 4, lines 10-12 teaches that "uniform" means the same size and shape. Thus the taught particles would have a standard deviation that falls within the claimed ranges. The rare earth fluoride can be yttrium, lanthanum or gadolinium fluoride and the phosphor is activated by an absorber-emitter pair, such as Yb-Er, Yb-Ho or Yb-Tm. The phosphor has the formula  $Y_{0.8}Yb_{0.2-m}Er_mF_3$ , where m is 0.01-0.02. This formula falls within that claimed. The taught particle size range encompasses the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). While example teaches a particle size of about 400 nm, a reference is not limited

to the teachings in its examples. The taught range of less than 1 micron suggests the claimed range. The reference suggests the claimed phosphors.

Applicants argues that the reference does not teach how to produce particles having a size of less than 350 nm. Applicants have not given any basis for reaching this conclusion since the reference teaches the general process for produces particles have a size of less than 1 microns which includes values of less than 350 nm. The rejection is maintained.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,674,698.

As discussed above, This reference teaches monodispersed fluoride up-conversion phosphors having a particle size in the range of 100-300 nm. This range overlaps that claimed and as discussed above, the teaching of monodispersed particles teaches that claimed standard deviation. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed particles.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-7 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by WO

02/20696.

Claims 1-7 and 28-30 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. patent application publication 2003/0032192.

U.S. patent application publication 2003/0032192 is the national stage application for WO 02/20696 and thus is the translations for WO 02/20696.

These references teaches producing nanosized particles having a size of size of 1-8 nm and a standard deviation of les than 10% (paragraph 134). Examples 38-39 teach these particles can be composed of  $\text{YF}_3\text{:Yb,Er}$  and  $\text{LaF}_3\text{:Yb,Er}$ , which are known in the art to emit visible light when excited by light having a longer wavelength, and that these particles have a molar ratio of 79 Y or La: 18 Yb: 3 Er. These ratios fall within that claimed. Paragraph 108 teaches the particle can have the formula  $\text{NaYF}_4\text{:Yb,Er}$ , which is known in the art to emit visible light when excited by light having a longer wavelength. The reference teaches the claimed particles.

Claims 12-22 are allowable over the cited art of record. There is no teaching or suggestion in the cited art of record of the claimed process where a rare earth chelator is present during the aqueous based co-precipitation reaction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

cmk  
November 26, 2007

  
C. Melissa Koslow  
Primary Examiner  
Art Unit 1793